

SEQUENCE LISTING

<110> Kim, Jin-Soo
 Kwon, Young Do
 Kim, Hyun-Won
 Ryu, Eun-Hyun
 Hwang, Moon-Sun

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47

<210> 8

<211> 49

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<213> HIV-1

<400> 8

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<211> 50

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<213> HIV-1

<400> 11

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<400> 12

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Lys Glu Gly Gly Ser Thr Phe Arg Thr Gly Gln Glu Arg Pro Asp Pro
1 5 10 15

cgg gaa ttc aga tct act agt gcg gcc gct aag taagtaagac gtcgagctcg 101
Arg Glu Phe Arg Ser Thr Ser Ala Ala Ala Lys
20 25

ccatcgcggt ggaagcttt 120

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 Lys Glu Gly Gly Ser Thr Phe Arg Thr Gly Gln Glu Arg Pro Asp Pro
 1 5 10 15
 Arg Glu Phe Arg Ser Thr Ser Ala Ala Lys
 20 25

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 Glu Arg Pro Tyr Ala Cys Pro Val Glu
 1 5
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 Ser Cys Asp Arg Arg Phe Ser Arg Ser Asp Glu Leu Thr Arg His Ile
 10 15 20 25
 cgc atc cac act ggc cag aag ccc ttc cag tgt cga atc tgc atg cgt 147
 Arg Ile His Thr Gly Gln Lys Pro Phe Gln Cys Arg Ile Cys Met Arg
 30 35 40
 aac ttc agt cgt agt gac cac ctt acc acc cac atc cgg acc cac acc 195
 Asn Phe Ser Arg Ser Asp His Leu Thr Thr His Ile Arg Thr His Thr
 45 50 55
 ggc gag aag cct ttt gcc tgt gac att tgt ggg agg aag ttt gcc agg 243
 Gly Glu Lys Pro Phe Ala Cys Asp Ile Cys Gly Arg Lys Phe Ala Arg
 60 65 70
 agt gat gaa cgc aag agg cat acc aaa atc cat tta aga cag aag gat 291
 Ser Asp Glu Arg Lys Arg His Thr Lys Ile His Leu Arg Gln Lys Asp
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 ccgcgggaat cc 303

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Pro Phe Gln Cys Arg Ile Cys Met Arg Asn Phe Ser Arg Ser Asp His			
35	40	45	
Leu Thr Thr His Ile Arg Thr His Thr Gly Glu Lys Pro Phe Ala Cys			
50	55	60	
Asp Ile Cys Gly Arg Lys Phe Ala Arg Ser Asp Glu Arg Lys Arg His			
65	70	75	80
Thr Lys Ile His Leu Arg Gln Lys Asp			
85			

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 <213> Homo sapiens

<220>
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 <222> (1)...(102)

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Thr Gly Gln Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly	
1 5 10 15	
tgt ccc tca aac ctt cga agg cat gga agg act cac acc ggc gag aaa	96
Cys Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys	
20 25 30	
ccg cgg	102
Pro Arg	

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 <211> 34
 <212> PRT
 <213> Homo sapiens

<400> 23	
Thr Gly Gln Lys Pro Tyr Lys Cys Lys Gln Cys Gly Lys Ala Phe Gly	
1 5 10 15	
Cys Pro Ser Asn Leu Arg Arg His Gly Arg Thr His Thr Gly Glu Lys	
20 25 30	
Pro Arg	

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 <211> 102
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(102)

<400> 24	
acc ggg gag aag cca tac aag tgt aag gag tgt ggg aaa gcc ttc aac	48
Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn	
1 5 10 15	

ccg	cgg	102
Pro	Arg	

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<400> 25
Thr Gly Glu Lys Pro Tyr Lys Cys Lys Glu Cys Gly Lys Ala Phe Asn
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His Ser Ser Asn Phe Asn Lys His His Arg Ile His Thr Gly Glu Lys
          20           25           30
Pro Arg
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<220>
<221> CDS
<222> (1) ... (102)
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agt ggt tca aac ttc act cga cat cag aga att cac acc ggt gaa aag 96
Ser Gly Ser Asn Phe Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
20 25 30

ccg	cgg	102
Pro	Arg	

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<400> 27
Thr Gly Glu Arg Pro Phe Glu Cys Lys Glu Cys Gly Lys Ala Phe Ser
 1           5           10           15
Ser Gly Ser Asn Phe Thr Arg His Gln Arg Ile His Thr Gly Glu Lys
          20           25           30
Pro Arg
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<210> 28
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<220>
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<222> (1)...(108)

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acc ggg cag aag cca tac gta tgc gat gta gag gga tgt acg tgg aaa 48
Thr Gly Gln Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys
1 5 10 15

ttt gcc cgc tca gat gag ctc aac aga cac aag aaa agg cac acc ggc 96
Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly
20 25 30

gaa aga ccg cgg 108
Glu Arg Pro Arg
35

<210> 29
<211> 36
<212> PRT
<213> Homo sapiens

<400> 29
Thr Gly Gln Lys Pro Tyr Val Cys Asp Val Glu Gly Cys Thr Trp Lys
1 5 10 15
Phe Ala Arg Ser Asp Glu Leu Asn Arg His Lys Lys Arg His Thr Gly
20 25 30
Glu Arg Pro Arg
35

<210> 30
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<212> DNA
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<222> (1)...(102)

<400> 30
acc ggg gag aga cct tac gag tgt aat gaa tgc ggg aaa gct ttt gcc 48
Thr Gly Glu Arg Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ala
1 5 10 15

caa aat tca act ctc aga gta cac cag aga att cac acc ggc gaa aag 96
Gln Asn Ser Thr Leu Arg Val His Gln Arg Ile His Thr Gly Glu Lys
20 25 30

ccg cgg 102
Pro Arg

<210> 31
<211> 34
<212> PRT
<213> Homo sapiens

<400> 31

Thr Gly Glu Arg Pro Tyr Glu Cys Asn Glu Cys Gly Lys Ala Phe Ala
 1 5 10 15
 Gln Asn Ser Thr Leu Arg Val His Gln Arg Ile His Thr Gly Glu Lys
 20 25 30
 Pro Arg

<210> 32

<211> 102

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(102)

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 Thr Gly Glu Arg Pro Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser
 1 5 10 15
 gtg agc tca acc ctt att aga cat cag aga atc cac acc ggc gag aga 96
 Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His Thr Gly Glu Arg
 20 25 30
 ccg cgg 102
 Pro Arg

<210> 33

<211> 34

<212> PRT

<213> Homo sapiens

<400> 33

Thr Gly Glu Arg Pro Tyr Glu Cys Asn Tyr Cys Gly Lys Thr Phe Ser
 1 5 10 15
 Val Ser Ser Thr Leu Ile Arg His Gln Arg Ile His Thr Gly Glu Arg
 20 25 30
 Pro Arg

<210> 34

<211> 69

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(69)

<400> 34

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 Tyr Gln Cys Asn Ile Cys Gly Lys Cys Phe Ser Cys Asn Ser Asn Leu
 1 5 10 15
 cac agg cac cag aga acg cac 69
 His Arg His Gln Arg Thr His

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<210> 35
 <211> 23
 <212> PRT
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<400> 35
 Tyr Gln Cys Asn Ile Cys Gly Lys Cys Phe Ser Cys Asn Ser Asn Leu
 1 5 10 15
 His Arg His Gln Arg Thr His
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<210> 36
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 Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Ser Ser His Leu
 1 5 10 15
 aga aga cat gag aaa act cac 69
 Arg Arg His Glu Lys Thr His
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 <211> 23
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<400> 37
 Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Ser Ser His Leu
 1 5 10 15
 Arg Arg His Glu Lys Thr His
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<210> 38
 <211> 69
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 1 5 10 15
 acc cgc cac cag aaa atc cac 69
 Thr Arg His Gln Lys Ile His
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 <211> 23
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 <213> Homo sapiens

<400> 39
 Tyr Lys Cys Gly Gln Cys Gly Lys Phe Tyr Ser Gln Val Ser His Leu
 1 5 10 15
 Thr Arg His Gln Lys Ile His
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 Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Cys Ser His Leu
 1 5 10 15

aga aga cat gag aaa act cac 69
 Arg Arg His Glu Lys Thr His
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 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 41
 Tyr Ala Cys His Leu Cys Gly Lys Ala Phe Thr Gln Cys Ser His Leu
 1 5 10 15
 Arg Arg His Glu Lys Thr His
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<210> 42
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
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 <222> (1)...(69)

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 Tyr Ala Cys His Leu Cys Ala Lys Ala Phe Ile Gln Cys Ser His Leu
 1 5 10 15

aga aga cat gag aaa act cac 69
 Arg Arg His Glu Lys Thr His
 20

<210> 43
 <211> 23
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<400> 43
 Tyr Ala Cys His Leu Cys Ala Lys Ala Phe Ile Gln Cys Ser His Leu
 1 5 10 15
 Arg Arg His Glu Lys Thr His
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<210> 44
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

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 Tyr Val Cys Arg Glu Cys Gly Arg Gly Phe Arg Gln His Ser His Leu
 1 5 10 15
 gtc aga cac aag agg aca cat 69
 Val Arg His Lys Arg Thr His
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<210> 45
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 45
 Tyr Val Cys Arg Glu Cys Gly Arg Gly Phe Arg Gln His Ser His Leu
 1 5 10 15
 Val Arg His Lys Arg Thr His
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<210> 46
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 46
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 Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Asn Leu
 1 5 10 15
 atc aga cac cag aga act cac 69
 Ile Arg His Gln Arg Thr His
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<210> 47
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 47
 Phe Glu Cys Lys Asp Cys Gly Lys Ala Phe Ile Gln Lys Ser Asn Leu
 1 5 10 15
 Ile Arg His Gln Arg Thr His
 20

<210> 48
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

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 Tyr Val Cys Arg Glu Cys Arg Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15

atc aga cac cag agg acg cac 69
 Ile Arg His Gln Arg Thr His
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<210> 49
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 49
 Tyr Val Cys Arg Glu Cys Arg Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15
 Ile Arg His Gln Arg Thr His
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 <213> Homo sapiens

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 1 5 10 15

att gta cat cag aga aca cac 69
 Ile Val His Gln Arg Thr His
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<210> 51

<211> 23
 <212> PRT
 <213> Homo sapiens

<400> 51
 Tyr Glu Cys Asn Thr Cys Arg Lys Thr Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15
 Ile Val His Gln Arg Thr His
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<210> 52
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 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

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 Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15

act gta cat caa aaa atc cac 69
 Thr Val His Gln Lys Ile His
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<210> 53
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 53
 Tyr Val Cys Ser Lys Cys Gly Lys Ala Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15
 Thr Val His Gln Lys Ile His
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<210> 54
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 <212> DNA
 <213> Homo sapiens

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 <221> CDS
 <222> (1)...(69)

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 Tyr Lys Cys Asp Glu Cys Gly Lys Asn Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15

att gta cat aag aga att cat 69
 Ile Val His Lys Arg Ile His
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<210> 55
 <211> 23

<212> PRT
 <213> Homo sapiens

<400> 55
 Tyr Lys Cys Asp Glu Cys Gly Lys Asn Phe Thr Gln Ser Ser Asn Leu
 1 5 10 15
 Ile Val His Lys Arg Ile His
 20

<210> 56
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 56
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 Tyr Glu Cys Asp Val Cys Gly Lys Thr Phe Thr Gln Lys Ser Asn Leu
 1 5 10 15

ggt gta cat cag aga act cat 69
 Gly Val His Gln Arg Thr His
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<210> 57
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 57
 Tyr Glu Cys Asp Val Cys Gly Lys Thr Phe Thr Gln Lys Ser Asn Leu
 1 5 10 15
 Gly Val His Gln Arg Thr His
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 <211> 69
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 Tyr Lys Cys Pro Asp Cys Gly Lys Ser Phe Ser Gln Ser Ser Ser Leu
 1 5 10 15

att cgc cac cag cgg aca cac 69
 Ile Arg His Gln Arg Thr His
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<210> 59
 <211> 23
 <212> PRT

<213> Homo sapiens

<400> 59

Tyr	Lys	Cys	Pro	Asp	Cys	Gly	Lys	Ser	Phe	Ser	Gln	Ser	Ser	Ser	Leu
1				5					10					15	
Ile	Arg	His	Gln	Arg	Thr	His									
			20												

<210> 60

<211> 69

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(69)

<400> 60

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Tyr	Glu	Cys	Gln	Asp	Cys	Gly	Arg	Ala	Phe	Asn	Gln	Asn	Ser	Ser	Leu
1				5					10					15	

48

ggg	cgg	cac	aag	agg	aca	cac									
Gly	Arg	His	Lys	Arg	Thr	His									
			20												

69

<210> 61

<211> 23

<212> PRT

<213> Homo sapiens

<400> 61

Tyr	Glu	Cys	Gln	Asp	Cys	Gly	Arg	Ala	Phe	Asn	Gln	Asn	Ser	Ser	Leu
1				5					10					15	
Gly	Arg	His	Lys	Arg	Thr	His									
			20												

<210> 62

<211> 69

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(69)

<400> 62

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Tyr	Lys	Cys	Glu	Glu	Cys	Gly	Lys	Ala	Phe	Asn	Gln	Ser	Ser	Thr	Leu
1				5					10					15	

48

act	aga	cat	aag	ata	gtt	cat									
Thr	Arg	His	Lys	Ile	Val	His									
			20												

69

<210> 63

<211> 23

<212> PRT

<213> Homo sapiens...

<400> 63

Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Asn Gln Ser Ser Thr Leu
 1 5 10 15
 Thr Arg His Lys Ile Val His
 20

<210> 64

<211> 69

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(69)

<400> 64

tat aag tgc atg gag tgt ggg aag gct ttt aac cgc agg tca cac ctc 48
 Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1 5 10 15

aca cgg cac cag cgg att cac 69
 Thr Arg His Gln Arg Ile His
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<210> 65

<211> 23

<212> PRT

<213> Homo sapiens

<400> 65

Tyr Lys Cys Met Glu Cys Gly Lys Ala Phe Asn Arg Arg Ser His Leu
 1 5 10 15
 Thr Arg His Gln Arg Ile His
 20

<210> 66

<211> 69

<212> DNA

<213> Homo sapiens

<220>

<221> CDS

<222> (1)...(69)

<400> 66

tat aca tgt aaa cag tgt ggg aaa gcc ttc agt gtt tcc agt tcc ctt 48
 Tyr Thr Cys Lys Gln Cys Gly Lys Ala Phe Ser Val Ser Ser Ser Leu
 1 5 10 15

cga aga cat gaa acc act cac 69
 Arg Arg His Glu Thr Thr His
 20

<210> 67

<211> 23

<212> PRT

<213> Homo sapiens

<400> 67

Tyr	Thr	Cys	Lys	Gln	Cys	Gly	Lys	Ala	Phe	Ser	Val	Ser	Ser	Ser	Leu
1				5					10					15	
Arg	Arg	His	Glu	Thr	Thr	His									
			20												

<210> 68

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> purified polypeptide

<221> VARIANT

<222> 4

<223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT

<222> 2, 6-8, 10, 12, 16

<223> Xaa = any amino acid

<221> VARIANT

<222> 1, 9

<223> Xaa = Phe or Tyr

<221> VARIANT

<222> 15

<223> Xaa = hydrophobic residue

<221> VARIANT

<222> 19

<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 68

Xaa	Xaa	Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Cys	Xaa	Ser	Asn	Xaa	Xaa
1				5					10					15	
Arg	His	Xaa	His												
			20												

<210> 69

<211> 20

<212> PRT

<213> Artificial Sequence

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<223> purified polypeptide

<221> VARIANT

<222> 4

<223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT

<222> 2, 6-8, 10, 12, 16

<223> Xaa = any amino acid

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<223> Xaa = Phe or Tyr

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 <223> Xaa = hydrophobic residue

<221> VARIANT
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 <223> Xaa = any amino acid; 3-5 amino acids in length

<400> 69
 Xaa Xaa Cys Xaa Cys Xaa Xaa Xaa Xaa Xaa His Xaa Ser Asn Xaa Xaa
 1 5 10 15
 Lys His Xaa His
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 <223> purified polypeptide

<221> VARIANT
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 <223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT
 <222> 2, 6-8, 10, 12, 16
 <223> Xaa = any amino acid

<221> VARIANT
 <222> 1, 9
 <223> Xaa = Phe or Tyr

<221> VARIANT
 <222> 15
 <223> Xaa = hydrophobic residue

<221> VARIANT
 <222> 19
 <223> Xaa = any amino acid; 3-5 amino acids in length

<400> 70
 Xaa Xaa Cys Xaa Cys Xaa Xaa Xaa Xaa Xaa Ser Xaa Ser Asn Xaa Xaa
 1 5 10 15
 Arg His Xaa His
 20

<210> 71
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> purified polypeptide

<221> VARIANT
 <222> 4
 <223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT
 <222> 2, 6-8, 10, 12, 16

<223> Xaa = any amino acid

<221> VARIANT

<222> 1, 9

<223> Xaa = Phe or Tyr

<221> VARIANT

<222> 15

<223> Xaa = hydrophobic residue

<221> VARIANT

<222> 19

<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 71

Xaa	Xaa	Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Gln	Xaa	Ser	Thr	Xaa	Xaa
1				5					10					15	
Val	His	Xaa	His												
			20												

<210> 72

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> purified polypeptide

<221> VARIANT

<222> 4

<223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT

<222> 2, 6-8, 10, 12, 16

<223> Xaa = any amino acid

<221> VARIANT

<222> 1, 9

<223> Xaa = Phe or Tyr

<221> VARIANT

<222> 14

<223> Xaa = Ser or Thr

<221> VARIANT

<222> 15

<223> Xaa = hydrophobic residue

<221> VARIANT

<222> (19)...(19)

<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 72

Xaa	Xaa	Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Val	Xaa	Ser	Xaa	Xaa	Xaa
1				5					10					15	
Arg	His	Xaa	His												
			20												

<210> 73

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> purified polypeptide

<221> VARIANT

<222> 4

<223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT

<222> 2, 6-8, 10, 12, 16

<223> Xaa = any amino acid

<221> VARIANT

<222> 1, 9

<223> Xaa = Phe or Tyr

<221> VARIANT

<222> 15

<223> Xaa = hydrophobic residue

<221> VARIANT

<222> 19

<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 73

Xaa	Xaa	Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Gln	Xaa	Ser	His	Xaa	Xaa
1				5				10						15	
Arg	His	Xaa	His												
			20												

<210> 74

<211> 20

<212> PRT

<213> Artificial Sequence

<220>

<223> purified polypeptide

<221> VARIANT

<222> 4

<223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT

<222> 2, 6-8, 10, 12, 16

<223> Xaa = any amino acid

<221> VARIANT

<222> 1, 9

<223> Xaa = Phe or Tyr

<221> VARIANT

<222> 15

<223> Xaa = hydrophobic residue

<221> VARIANT

<222> 19

<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 74

Xaa	Xaa	Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Gln	Xaa	Ser	Asn	Xaa	Xaa
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----

1 5 10 15
 Val His Xaa His
 20

<210> 75
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> purified polypeptide

<221> VARIANT
 <222> 4
 <223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT
 <222> 2, 6-8, 10, 12, 16
 <223> Xaa = any amino acid

<221> VARIANT
 <222> 1, 9
 <223> Xaa = Phe or Tyr

<221> VARIANT
 <222> 14
 <223> Xaa = Ser or Thr

<221> VARIANT
 <222> 15
 <223> Xaa = hydrophobic residue

<221> VARIANT
 <222> (19)...(19)
 <223> Xaa = any amino acid; 3-5 amino acids in length

<400> 75
 Xaa Xaa Cys Xaa Cys Xaa Xaa Xaa Xaa Xaa Gln Xaa Ser Xaa Xaa Xaa
 1 5 10 15
 Arg His Xaa His
 20

<210> 76
 <211> 20
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> coordinating residue

<221> VARIANT
 <222> 1, 9
 <223> Xaa = Phe or Tyr

<221> VARIANT
 <222> 2, 6-8, 10-14, 16, 17
 <223> Xaa = any amino acid

<221> VARIANT
 <222> 4
 <223> Xaa = any amino acid; 2-5 amino acids in length

<221> VARIANT

<222> 15

<223> Xaa = hydrophobic residue

<221> VARIANT

<222> 19

<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 76

Xaa	Xaa	Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa	Xaa
1				5				10						15	
Xaa	His	Xaa	His												
			20												

<210> 77

<211> 24

<212> PRT

<213> Artificial Sequence

<220>

<223> polypeptide motif

<221> VARIANT

<222> 1

<223> Xaa = Leu, Ile, Val, Met, Phe, Tyr, or Gly

<221> VARIANT

<222> 2

<223> Xaa = Ala, Ser, Leu, Val, or Arg

<221> VARIANT

<222> 3-4, 6, 8-11, 17, 19-23

<223> Xaa = any amino acid

<221> VARIANT

<222> 5

<223> Xaa = Leu, Ile, Val, Met, Ser, Thr, Ala, Cys, or Asn

<221> VARIANT

<222> 7

<223> Xaa = Leu, Ile, Val, or Met

<221> VARIANT

<222> (12)...(12)

<223> Xaa = Leu, Ile, or Val

<221> VARIANT

<222> (13)...(13)

<223> Xaa = Arg, Lys, Asn, Gln, Glu, Ser, Thr, Ala, Ile, or Tyr

<221> VARIANT

<222> (14)...(14)

<223> Xaa = Leu, Ile, Val, Phe, Ser, Thr, Asn, Lys, or His

<221> VARIANT

<222> (16)...(16)

<223> Xaa = Phe, Tyr, Val, or Cys

<221> VARIANT
 <222> (18)...(18)
 <223> Xaa = Asn, Asp, Gln, Thr, Ala, or His

<221> VARIANT
 <222> (24)...(24)
 <223> Xaa = Arg, Lys, Asn, Ala, Ile, Met, or Trp

<400> 77
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Trp Xaa
 1 5 10 15
 Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
 20

<210> 78
 <211> 6
 <212> PRT
 <213> Eukaryote

<220>
 <221> VARIANT
 <222> 3
 <223> Xaa = Glu or Gln

<221> VARIANT
 <222> 4
 <223> Xaa = Lys or Arg

<221> VARIANT
 <222> 6
 <223> Xaa = Tyr or Phe

<400> 78
 Thr Gly Xaa Xaa Pro Xaa
 1 5

<210> 79
 <211> 29
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 79
 tgcctgcagc atttgtggga ggaagtttg

29

<210> 80
 <211> 30
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 80
 atgctgcagg cttaaggctt ctcgccggtg

30

<210> 81
 <211> 24

<212> DNA
 <213> Artificial Sequence

<220>
 <223> primer for PCR

<221> misc_feature
 <222> (0)...(0)
 <223> n = A, T, G, or C; y = T or C; s = G or C; r = G
 or A

<400> 81
 gcgtccggac ncayacnggn sara

24

<210> 82
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer for PCR

<221> misc_feature
 <222> (0)...(0)
 <223> n = A, T, G, or C; b = G, C, or T; r = G or A; w =
 A or T; y = T or C

<400> 82
 cggaattcan nbrwanggy tytc

24

<210> 83
 <211> 7
 <212> PRT
 <213> Artificial Sequence

<220>
 <223> amino acid motif

<221> VARIANT
 <222> 4
 <223> Xaa = Glu or Gln

<221> VARIANT
 <222> 5
 <223> Xaa = Lys or Arg

<221> VARIANT
 <222> 3
 <223> Xaa = Tyr or Phe

<400> 83
 His Thr Gly Xaa Xaa Pro Xaa
 1 5

<210> 84
 <211> 54
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic oligonucleotide

<400> 84
gggcccgggg agaagcctta cgcattgtcca gtcgaatctt gtgatagaag attc 54

<210> 85
<211> 75
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C; b = G, C, or T; s = G or C

<400> 85
ctccccgcgg ttccgccggtg tggattctga tatgsnbsnb aagsnbsnbs nbsnbtgaga 60
atcttctatc acaag 75

<210> 86
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 86
ctagaccgg gaattcgctc acg 23

<210> 87
<211> 23
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<400> 87
gatccgtcga cgaattcccg ggt 23

<210> 88
<211> 38
<212> DNA
<213> syArtificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C

<400> 88
ccggtnnntg ggcgtacnnn tgggcgtcan nntgggcg 38

<210> 89
<211> 38
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic oligonucleotide

<221> misc_feature
<222> (0)...(0)
<223> n = A, T, G, or C

<400> 89
tcgacgccca nnntgacgcc canngtacg cccannna

38

<210> 90
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 90
ccgggtcgcg cgtgggcggt accg

24

<210> 91
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 91
tcgacggtac cgcccacgcg cgac

24

<210> 92
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 92
ccgggtcgcg agcgggcggt accg

24

<210> 93
<211> 24
<212> DNA
<213> Artificial Sequence

<220>
<223> synthetic probe for gel shift assay

<400> 93
tcgacggtac cgcccgcgcg cgac

24

<210> 94
<211> 24
<212> DNA
<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 94

ccgggtcgtg cttgggcggt accg

24

<210> 95

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 95

tcgacggtac cgcccaagca cgac

24

<210> 96

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 96

ccgggtcggg actgggcggt accg

24

<210> 97

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 97

tcgacggtac cgcccagtcc cgac

24

<210> 98

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 98

ccgggtcggg agtgggcggt accg

24

<210> 99

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> synthetic probe for gel shift assay

<400> 99

tcgacggtac cgcccactcc cgac

24

<210> 100

<211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic probe for gel shift assay

<400> 100
 ccgggtcgga catgggcggt accg

24

<210> 101
 <211> 24
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> synthetic probe for gel shift assay

<400> 101
 tcgacggtac cgcccatgtc cgac

24

<210> 102
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 102
 tat aag tgt aag gaa tgt ggg cag gcc ttt aga cag cgt gca cat ctt
 Tyr Lys Cys Lys Glu Cys Gly Gln Ala Phe Arg Gln Arg Ala His Leu
 1 5 10 15

48

att cga cat cac aaa ctt cac
 Ile Arg His His Lys Leu His
 20

69

<210> 103
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 103
 Tyr Lys Cys Lys Glu Cys Gly Gln Ala Phe Arg Gln Arg Ala His Leu
 1 5 10 15
 Ile Arg His His Lys Leu His
 20

<210> 104
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 104

tat aag tgt cat caa tgt ggg aaa gcc ttt att caa tcc ttt aac ctt 48
 Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu
 1 5 10 15

cga aga cat gag aga act cac 69
 Arg Arg His Glu Arg Thr His
 20

<210> 105
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 105
 Tyr Lys Cys His Gln Cys Gly Lys Ala Phe Ile Gln Ser Phe Asn Leu
 1 5 10 15
 Arg Arg His Glu Arg Thr His
 20

<210> 106
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 106
 ttc cag tgt aat cag tgt ggg gca tct ttt act cag aaa ggt aac ctc 48
 Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu
 1 5 10 15

ctc cgc cac att aaa ctg cac 69
 Leu Arg His Ile Lys Leu His
 20

<210> 107
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 107
 Phe Gln Cys Asn Gln Cys Gly Ala Ser Phe Thr Gln Lys Gly Asn Leu
 1 5 10 15
 Leu Arg His Ile Lys Leu His
 20

<210> 108
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer for PCR

<221> misc_feature
 <222> (0)...(0)
 <223> n =A, T, G, or C; 48-51 nucleotides in length

<400> 108
 acccacactg gccagaaacc cn 22

<210> 109
 <211> 22
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer for PCR

<221> misc_feature
 <222> (0)...(0)
 <223> n = A, T, G, or C; 42-45 nucleotides in length

<400> 109
 gatctgaatt cattcaccgg tn 22

<210> 110
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 110
 tac aaa tgt gaa gaa tgt ggc aaa gcc ttt agg cag tcc tca cac ctt 48
 Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15

act aca cat aag ata att cat 69
 Thr Thr His Lys Ile Ile His
 20

<210> 111
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 111
 Tyr Lys Cys Glu Glu Cys Gly Lys Ala Phe Arg Gln Ser Ser His Leu
 1 5 10 15
 Thr Thr His Lys Ile Ile His
 20

<210> 112
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 112
 tat gag tgt gat cac tgt gga aaa tcc ttt agc cag agc tct cat ctg 48
 Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu

1 5 10 15

aat gtg cac aaa aga act cac 69
 Asn Val His Lys Arg Thr His
 20

<210> 113
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 113
 Tyr Glu Cys Asp His Cys Gly Lys Ser Phe Ser Gln Ser Ser His Leu
 1 5 10 15
 Asn Val His Lys Arg Thr His
 20

<210> 114
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 114
 tac atg tgc agt gag tgt ggg cga ggc ttc agc cag aag tca aac ctc 48
 Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15

atc ata cac cag agg aca cac 69
 Ile Ile His Gln Arg Thr His
 20

<210> 115
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 115
 Tyr Met Cys Ser Glu Cys Gly Arg Gly Phe Ser Gln Lys Ser Asn Leu
 1 5 10 15
 Ile Ile His Gln Arg Thr His
 20

<210> 116
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 116
 tat gaa tgt gaa aaa tgt ggc aaa gct ttt aac cag tcc tca aat ctt 48
 Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
 1 5 10 15

act aga cat aag aaa agt cat
 Thr Arg His Lys Lys Ser His
 20

69

<210> 117
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 117
 Tyr Glu Cys Glu Lys Cys Gly Lys Ala Phe Asn Gln Ser Ser Asn Leu
 1 5 10 15
 Thr Arg His Lys Lys Ser His
 20

<210> 118
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 118
 tat gag tgc aat gaa tgt ggg aag ttt ttt agc cag agc tcc agc ctc 48
 Tyr Glu Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Ser Ser Ser Leu
 1 5 10 15

att aga cat agg aga agt cac 69
 Ile Arg His Arg Arg Ser His
 20

<210> 119
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 119
 Tyr Glu Cys Asn Glu Cys Gly Lys Phe Phe Ser Gln Ser Ser Ser Leu
 1 5 10 15
 Ile Arg His Arg Arg Ser His
 20

<210> 120
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 120
 tat gag tgt cac gat tgc gga aag tcc ttt agg cag agc acc cac ctc 48
 Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15

act cag cac cgg agg atc cac
 Thr Gln His Arg Arg Ile His
 20

69

<210> 121
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 121
 Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15
 Thr Gln His Arg Arg Ile His
 20

<210> 122
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 122
 tat gag tgt cac gat tgc gga aag tcc ttt agg cag agc acc cac ctc
 Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15 48

act cgg cac cgg agg atc cac
 Thr Arg His Arg Arg Ile His
 20 69

<210> 123
 <211> 23
 <212> PRT
 <213> Homo sapiens

<400> 123
 Tyr Glu Cys His Asp Cys Gly Lys Ser Phe Arg Gln Ser Thr His Leu
 1 5 10 15
 Thr Arg His Arg Arg Ile His
 20

<210> 124
 <211> 69
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(69)

<400> 124
 cac aag tgc ctt gaa tgt ggg aaa tgc ttc agt cag aac acc cat ctg
 His Lys Cys Leu Glu Cys Gly Lys Cys Phe Ser Gln Asn Thr His Leu
 1 5 10 15 48

act cgc cac caa cgc acc cac 69

Thr Arg His Gln Arg Thr His
20

<210> 125
<211> 23
<212> PRT
<213> Homo sapiens

<400> 125
His Lys Cys Leu Glu Cys Gly Lys Cys Phe Ser Gln Asn Thr His Leu
1 5 10 15
Thr Arg His Gln Arg Thr His
20

<210> 126
<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 126
tac cac tgt gac tgg gac ggc tgt gga tgg aaa ttc gcc cgc tca gat 48
Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
1 5 10 15

gaa ctg acc agg cac tac cgt aaa cac 75
Glu Leu Thr Arg His Tyr Arg Lys His
20 25

<210> 127
<211> 25
<212> PRT
<213> Homo sapiens

<400> 127
Tyr His Cys Asp Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
1 5 10 15
Glu Leu Thr Arg His Tyr Arg Lys His
20 25

<210> 128
<211> 75
<212> DNA
<213> Homo sapiens

<220>
<221> CDS
<222> (1)...(75)

<400> 128
tac aga tgc tca tgg gaa ggg tgt gag tgg cgt ttt gca aga agt gat 48
Tyr Arg Cys Ser Trp Glu Gly Cys Glu Trp Arg Phe Ala Arg Ser Asp
1 5 10 15

gag tta acc agg cac ttc cga aag cac 75
Glu Leu Thr Arg His Phe Arg Lys His

20

25

<210> 129
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 129
 Tyr Arg Cys Ser Trp Glu Gly Cys Glu Trp Arg Phe Ala Arg Ser Asp
 1 5 10 15
 Glu Leu Thr Arg His Phe Arg Lys His
 20 25

<210> 130
 <211> 75
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(75)

<400> 130
 ttc agc tgt agc tgg aaa ggt tgt gaa agg agg ttt gcc cgt tct gat 48
 Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp
 1 5 10 15

gaa ctg tcc aga cac agg cga acc cac 75
 Glu Leu Ser Arg His Arg Arg Thr His
 20 25

<210> 131
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 131
 Phe Ser Cys Ser Trp Lys Gly Cys Glu Arg Arg Phe Ala Arg Ser Asp
 1 5 10 15
 Glu Leu Ser Arg His Arg Arg Thr His
 20 25

<210> 132
 <211> 75
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(75)

<400> 132
 ttc gcc tgc agc tgg cag gac tgc aac aag aag ttc gcg cgc tcc gac 48
 Phe Ala Cys Ser Trp Gln Asp Cys Asn Lys Lys Phe Ala Arg Ser Asp
 1 5 10 15

gag ctg gcg cgg cac tac cgc aca cac 75
 Glu Leu Ala Arg His Tyr Arg Thr His
 20 25

<210> 133
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 133
 Phe Ala Cys Ser Trp Gln Asp Cys Asn Lys Lys Phe Ala Arg Ser Asp
 1 5 10 15
 Glu Leu Ala Arg His Tyr Arg Thr His
 20 25

<210> 134
 <211> 75
 <212> DNA
 <213> Homo sapiens

<220>
 <221> CDS
 <222> (1)...(75)

<400> 134
 tac cac tgc aac tgg gac ggc tgc ggc tgg aag ttt gcg cgc tca gac 48
 Tyr His Cys Asn Trp Asp Gly Cys Gly Trp Lys Phe Ala Arg Ser Asp
 1 5 10 15
 gag ctc acg cgc cac tac cga aag cac 75
 Glu Leu Thr Arg His Tyr Arg Lys His
 20 25

<210> 135
 <211> 25
 <212> PRT
 <213> Homo sapiens

<400> 135
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 Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
 1 5 10 15

act cga cat atg aag aag agt cac 72
 Thr Arg His Met Lys Lys Ser His
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<210> 137
 <211> 24
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 <213> Homo sapiens

<400> 137
 Phe Leu Cys Gln Tyr Cys Ala Gln Arg Phe Gly Arg Lys Asp His Leu
 1 5 10 15
 Thr Arg His Met Lys Lys Ser His
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<220>
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<210> 139
 <211> 81
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<400> 139
 ggtggcggcc gttacttact tagagctcga cgtcttactt acttagcggc cgcactagta 60
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aag acc cac acc agg act cat 69
 Lys Thr His Thr Arg Thr His
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<210> 141
 <211> 23
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Phe Gln Cys Lys Thr Cys Gln Arg Lys Phe Ser Arg Ser Asp His Leu
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 Lys Ile His Met Arg Lys His
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aag ctc aac aga cac aag aaa agg cac 75
 Lys Leu Asn Arg His Lys Lys Arg His
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 1 5 10 15

atc aga cat cag agg aca cac 69
 Ile Arg His Gln Arg Thr His
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<400> 147
 Tyr Ile Cys Arg Lys Cys Gly Arg Gly Phe Ser Arg Lys Ser Asn Leu
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ata agg cat cga aga act cac 69
 Ile Arg His Arg Arg Thr His
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Ile Arg His Arg Arg Thr His
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1 5 10 15
Arg His Xaa His
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Arg	His	Xaa	His
			20

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1				5					10					15	

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 Val His Xaa His
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<221> VARIANT
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 1 5 10 15
 Ile His Xaa His
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<210> 155
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<222> 15

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1				5				10						15	
Arg	His	Xaa	His												
			20												

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<211> 20

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<223> Xaa = any amino acid; 2-5 amino acids in length

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<223> Xaa = hydrophobic residue

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1				5				10						15	
Gln	His	Xaa	His												
			20												

<210> 157

<211> 18

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<221> VARIANT

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<223> Xaa = any amino acid

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<223> Xaa = Phe or Tyr

<221> VARIANT

<222> 13

<223> Xaa = hydrophobic residue

<221> VARIANT

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<400> 157

Cys	Xaa	Cys	Xaa	Xaa	Xaa	Xaa	Xaa	Gln	Xaa	Thr	His	Xaa	Xaa	Arg	His
1				5				10						15	
Xaa His															

<210> 158

<211> 20

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Xaa Xaa Cys Xaa Cys Xaa Xaa Xaa Xaa Xaa Arg Xaa Asp Lys Xaa Xaa

15

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<221> VARIANT
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<223> Xaa = any amino acid; 3-5 amino acids in length

<400> 160

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Arg	His	Xaa	His												
			20												

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1				5				10						15	
Arg	His	Xaa	His												
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 Arg His Xaa His
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